Washington State Department of Health

Endorsed by the Washington State Department of Health and the Washington State Medical Association

WSMA

Practice Guidance for JUDICIOUS USE OF ANTIBIOTICS

COMMUNITY ACQUIRED PNEUMONIA

OUTPATIENT TREATMENT OF ADULTS

"The initial site of care is perhaps the single most important clinical decision made by physicians during the entire course of CAP."[1]

PNEUMONIA IN OUTPATIENT SETTING NOT HIV INFECTED OR IMMUNOCOMPROMISED AGE ≥ 18 YEARS

- New onset symptoms: Cough, sputum production and/or dyspnea, especially if accompanied by fever and abnormal breath sounds
- Elderly or immunocompromised patient may present with confusion, failure to thrive, worsening of an underlying condition or falling down
- Not in an acute inpatient treatment facility

→ HISTORY & PHYSICAL EXAM

Positive X-Ray needed for diagnosis of Pneumonia

CXR INFILTRATE
with compatible clinical features supporting diagnosis of pneumonia

NO INFILTRATE
Manage/evaluate for alternative diagnosis (See "Bronchitis")

EVALUATE NEED FOR HOSPITAL OR SHORT STAY ADMISSION[1]

Admission remains a clinical decision, at physician discretion. (See Predictors of Drug Resistance and Key Points, on back. Consider also PORT Risk Calculator, on back.)

LOW RISK
Strongly Consider Treating as Outpatient

< 65 yrs, no cardiopulmonary risk factors and no predictors of Drug Resistant Strep. Pneumoniae (DRSP)

- Azithromcin,
- Clarithromcin, or
- Telithromycin***[11]

→ Closely monitor by Telephone

MODERATE RISK
Consider Treating as Outpatient

- Predictors of DRSP, or Gm neg
- Cardiopulmonary risk, or
- 1-2 risk factors (PORT†), and not frail elderly

If concern for patient stability or medication compliance, consider short stay or brief admission, then outpatient follow up

1st choice: Choose one of the following beta-lactams:

- (Best) Amoxicillin 3 Gm/day in 3 divided doses (high dose), with or without Clavulanate 6.4 mg/kg/day** in 3 divided doses[2,3,4,5]
- Cefuroxime 500mg BID or Cefpodoxime 200mg BID
- IM Ceftriaxone 1 Gm, followed by Cefpodoxime 200mg BID

PLUS Azithromycin, Clarithromycin, Telithromycin***[11] or Doxycycline

— OR —

2nd Choice: Antipneumococcal fluoroquinolone* (Used alone)

HIGH RISK
Consider Supervised Care or Hospitalization

- Patient is over 65 with multiple risk factors, frail elderly, or condition is unstable
- OR Patient is at high risk for mortality, i.e., 2 or more of the following present:
  - Resp Rate ≥ 30/min
  - Diastolic BP ≤ 60 mmHg
  - Systolic ≤ 90 mmHg
  - Bun > 7.0 mM (>19.1 mg/dL)
  - Confusion

→ **Admit Patient**
Follow hospital protocols and care pathways

* CDC recommends using fluroquinolones in low and moderate risk outpatients only when the patient has failed first line therapy, has known allergy to first line antibiotics, or highly resistant pnemococcus (penicillin MIC ≥ 4µg/mL).[3]

** This best achieved by Augmentin 500mg plus Amoxicillin 500mg each TID. Clavulanate dose must not exceed 10mg/kg/day.

*** Pending FDA approval. Consult www.fda.gov for more information.

CONTACT
Art Sprenkle, MD
Washington State Medical Education & Research Foundation
P: (425) 891-0502 email: asprenkle@myexcel.com

CREATED WITH ASSISTANCE BY
John Watkins, RPh, MPH and Premera Blue Cross

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TREATMENT OF COMMUNITY-ACQUIRED PNEUMONIA (CAP) KEY POINTS:

- CAP is frequently a mixed infection of typical and atypical bacteria.
- The clinical features of CAP cannot be reliably used to identify the causative agent of pneumonia with adequate sensitivity and specificity. Therefore, empiric therapy is usually required.
- The initial site of care decision is perhaps the single most important clinical decision made by physicians during the entire course of CAP. The previous page offers a qualitative approach to making this decision, while the PORT risk calculator is a quantitative risk scoring method. The ultimate decision regarding each patient should be made by the clinician after considering all facts of the case, including supportive care resources available to the patient.
- The site of care decision may also be influenced by the availability of outpatient support services and alternative forms of supervision.
- When multiple risk factors coexist, intensely supervised care should be strongly considered.
- A significant number of treatment failures have been documented for *S. pneumoniae* resistant to macrolides. Be prepared for possible treatment failure.[4,5]
- Viral and pneumococcal infections predominate in the under age 5 population. Above age 5, atypicals begin to dominate with increasing age, but *S. pneumoniae* still represents 25-35% of the cases.[9]
- In order to minimize the development of resistance to these valuable agents, antipneumoccal fluoroquinolones should not be used in patients under the age of 18 and should be avoided in adults when alternatives exist.[3]

PORT† RISK CALCULATOR[7]

RISK CLASS I: (Usually outpatient care)

Outpatients< 50 years old with no cardiopulmonary disease and none of the following risk factors:

- **Comorbidities:** neoplastic disease, heart failure, cerebrovascular, chronic pulmonary, renal or hepatic disease, bronchiectasis, diabetes, alcoholism, malnutrition
- **Hospitalization within Past Year**
- **Physical Exam Findings:** Altered mental status, Pulse ≥ 125/minute, Respiratory rate ≥ 30/minute, Systolic BP < 90mmHg, Temperature < 35°C or ≥ 40 °C

RISK CLASSES II-V: (See below for site of care)

Add up point score for patients not qualifying for Class I according to the following list:

CHARACTERISTIC	POINTS
Demographic factors:	
Age (men)	1 point/yr
Age (women)	Age (yr) - 10
Nursing home resident	10
Comorbidities:	
Neoplastic disease	30
Liver disease	20
Congestive heart failure	10
Cerebrovascular disease	10
Renal disease	10
Physical Exam Findings:	
Altered mental status	20
Respiratory rate ≥ 30/minute	20
Systolic BP < 90mmHg	20
Temperature < 35°C or ≥ 40 °C	15
Pulse ≥ 125/minute	10
Lab and Radiographic Findings:	
Arterial pH < 7.35	30
Na < 130 mEq/L	20
Partial pressure of arterial O2 < 60mmHg	10
BUN ≥ 30 mg/dL (11 mmol/L)	20
Glucose > 250mg/dL (14 mmol/L)	10
Hematocrit < 30	10
Pleural effusion	10

RISK CLASS ASSIGNMENT AND SITE OF CARE:

CLASS	POINT SCORE	USUAL SITE OF CARE
I	(See above)	Outpatient Care
II	≤ 70	Outpatient Care
III	71-90	Brief inpatient observation
IV	91-130	Traditional inpatient care
V	> 130	Traditional inpatient care

†pneumonia Patient Outcomes Research Team cohort study

PREVENTION STRATEGIES

Appropriate patients at risk for pneumonia should be vaccinated with both influenza and pneumococcal vaccine.

Pneumococcal Vaccine:

- **Any hospitalized patient with pneumonia or other medical illness**
- **All patients over 65**
- **Repeat vaccine once after 5 years if received first dose before age 65**
- **Patients under 65 with:**
  - Cardiovascular disease
  - COPD (not asthma)
  - Diabetes
  - Alcoholism
  - Chronic liver disease
  - CSF leaks
  - Asplenia
  - Living in special environments/social settings (Alaskan natives, certain American Indian groups, persons in long-term care facilities)

Influenza Vaccine (only during flu season):

- **Patients at increased risk for complications of influenza:**[1]
  - All patients 50 and above
  - Nursing home residents
  - Chronic cardiovascular disease
  - COPD
  - Required regular medical care or hospitalization in previous year
  - Pregnant women in 2nd or 3rd trimester (but NOT in 1st trimester) during flu season
- **Those who can transmit influenza to any of the above high-risk patients:**
  - Physicians, nurses and other personnel in hospital or outpatient care settings
  - Employees of nursing homes and chronic care facilities
  - Home care providers for high risk patients
  - Household members of patients in high risk groups

Smoking cessation:

Can improve risk profile and should always be encouraged.

PREDICTORS OF DRUG RESISTANCE[1]

- **Drug-Resistant *S. Pneumoniae* (DRSP):**
  - > 65 years old
  - Antibiotic Rx in last 3 months
  - EtOH use
  - Multiple medical comorbidities
  - Immunosuppression
  - Exposure to high-risk child (e.g., in day care)
- **Gm Neg:**
  - Nursing Home residence
  - Cardiopulmonary disease
  - Multiple medical comorbidities
  - Recent antibiotics
- **Pseudomonas:**
  - Structural lung disease (e.g., bronchiectasis, cystic fibrosis)
  - Corticosteroid use (> 10mg/day)
  - Broad spectrum Abx > 7 days out of past month
  - Malnutrition
  - Leukopenic immunosuppression

References:

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7. Fine MJ, Auble TE, Yealy DM, *et al*. A Prediction Rule to Identify Low-Risk Patients with Community-Acquired Pneumonia. *NEJM* 1997;336:243-50.
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10. Heiskanen-Kosma T, *et al*. Etiology of childhood pneumonia: serologic results of a prospective, population-based study. *Pediatr Infect Dis J*, 1998;17:986-91.
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Risk calculators and prediction rules are not perfect, and must not replace clinical judgment.[2]

This guideline is intended as a general reference. Practitioners should always independently assess each patient to evaluate whether care is indicated and what care and follow-up treatment may be appropriate under the circumstances presented. The clinical guidelines and information featured in this document are intended as an analytical framework for the evaluation and treatment of your patients. These Guidelines are not intended to replace your best clinical judgement or establish a protocol for all patients. We know that there is rarely one approach in treating a patient's clinical presentation.